

Amendments to the Claims

1. (currently amended) A method of performing maintenance on a network access server having associated channels carrying incoming digital or analog traffic, the network access server being operatively coupled with a service request switch, the method comprising:

determining whether off-line maintenance is needed on a network access server and if so then communicating a busy condition of any unused associated channel from the network access server to the service request switch;

monitoring any used associated channel for either of a digital and an analog call thereon and waiting until the used associated channel becomes substantially unused as indicated by defined digital and analog signaling protocols comprehended by said monitoring, and migrating any existing calls to other network access servers without disconnection to the end user;

when the used associated channel becomes substantially unused as indicated by such defined digital and analog signaling protocols comprehended by said monitoring, communicating a busy condition of such then-unused channel from the network access server to the service request switch;

signaling that maintenance on the network access server can be performed; and automatically routing any new client service requests that may arrive during a busy condition of the network access server to another network access server operatively coupled with the service request switch.

2. (original) The method of claim 1 which after completion of the maintenance further comprises communicating an idle condition of any associated channel to the service request switch.

3. (original) The method of claim 2 wherein said communicating is performed via a standard communication protocol between the network access server and the service request switch, the standard protocol normally communicating the busy/idle condition of any associated channel of the network access server to the service request switch.

4. (previously presented) The method of claim 1 in which the network access server is within a given hunt group, wherein said automatic routing is targeted to another network access server within the given hunt group.

5. (previously presented) Apparatus for performing maintenance on a given network access server within a given hunt group, the network access server being operatively coupled with a telephone company (telco) switch, the apparatus comprising:

a scheduler for automatically scheduling off-line maintenance for a given network access server upon the occurrence of one or more of a predetermined condition and a predetermined time;

a channel usage monitor responsive to said scheduler for monitoring usage of the associated channels of the given network access server and for determining if existing calls are below a predetermined usage threshold, wherein existing calls below the usage threshold will be migrated to other network access servers;

a make-busy mechanism responsive to said channel usage monitor and coupled with the telco switch for signaling the telco switch that all channels are busy, whereby maintenance is performed on the given network access server after said signaling and upon a determination by said channel usage monitor that no channel is currently in use; and

automatically routing any new client service requests that may arrive during a busy condition of the network access server to another network access server operatively coupled with the service request switch and within the given hunt group.

6. (original) The apparatus of claim 5, wherein the signaling by said make-busy mechanism is performed via a standard communication protocol between the network access server and the telco switch, the standard protocol normally communicating a busy/idle condition of any associated channel of the network access server to the telco switch.

7. (original) The apparatus of claim 5, wherein the signaling by said make-busy mechanism is in accordance with predefined network software, firmware and hardware infrastructures.

8. (currently amended) A method of temporarily taking offline for service a given network access server within a given hunt group, the given network access server having plural associated channels that may carry digital or analog calls, the network access server being operatively coupled with a network service request switch, the method comprising:

 busying out any unused channels of the given access server and communicating a busy condition thereof to the service request switch;

 monitoring any used associated channel for either of a digital and an analog call thereon;

 during said monitoring, awaiting substantial non-use of any remaining associated channels of the given access server and thereafter communicating a busy condition thereof to the service request switch, such substantial non-use being indicated by usage falling below a predetermined usage threshold ~~defined digital and analog signaling protocols comprehended by said monitoring~~, wherein remaining, existing calls may be migrated to other network access servers prior to communicating a busy condition;

 signaling that service to the given access server can be performed; and

 routing any new client service requests that may arrive during a busy condition of the given network access server to another network access server operatively coupled with the service request switch and within the given hunt group; and after such service is completed

communicating a substantially idle condition of the associated channels to the service request switch.

9. (previously presented) The method of claim 8 which further comprises scheduling the service automatically by command to the given access server.

10. (canceled)

11. (original) The method of claim 8 which further comprises scheduling the service manually by command to the given access server.

12. (original) The method of claim 8 which further comprises scheduling the service automatically by command to the given access server from a system administrator software program residing within the network.

13. (previously presented) A computer-readable medium containing a program for taking an active network access server, within a given hunt group, off line for maintenance, the active network access server being operatively coupled with a telephone company (telco) switch, the program comprising:

a maintenance scheduler for automatically scheduling off-line maintenance for the active network access server;

a channel usage monitor responsive to said scheduler for monitoring usage of the associated channels of the active network access server, and for migrating existing calls below a usage threshold to other network access servers;

a make-busy mechanism responsive to said scheduler and to said channel usage monitor and coupled with the telco switch for signaling the telco switch that all channels associated with the active network access server are busy, whereby maintenance is performed on the active network access server after such signaling and upon a determination by said channel usage monitor that no channel associated with the active network access server is currently in use; and

automatically routing any new client service requests that may arrive during a busy condition of the active network access server to another network access server operatively coupled with the service request switch and within the given hunt group.

14. (previously presented) The program of claim 13 wherein such signaling by said make-busy mechanism is performed via a standard communication protocol between the active network access server and the telco switch, the standard protocol normally communicating a busy/idle condition of any associated channel of the active network access server to the telco switch.

15. (original) The program of claim 13 wherein the signaling by said make-busy mechanism is in accordance with predefined network software, firmware and hardware infrastructures.

16. (currently amended) A computer-readable medium containing a program for performing maintenance on a network access server within a given hunt group, the network access server having associated channels, the network access server being operatively coupled with a service request switch, the program comprising:

instructions determining whether off-line maintenance is needed on the network access server;

instructions communicating a busy condition of any associated channel from the network access server to the service request switch;

instructions monitoring any used associated channel and waiting until the used associated channel becomes substantially unused, said monitoring being for either of a digital and an analog call as indicated by defined digital and analog signaling protocols comprehended by said monitoring instructions, and migrating selected ones of existing calls to other network access servers without disconnection to the end user;

instructions, operative when the used associated channel becomes substantially

unused as indicated by such defined digital and analog signaling protocols comprehended by said monitoring instructions, communicating a busy condition of such then-unused channel from the network access server to the service request switch;

instructions signaling the network access server that maintenance can be performed;
and

instructions automatically routing any new client service requests that may arrive during a busy condition of the network access server to another network access server operatively coupled with the service request switch and within the given hunt group, said communicating, said monitoring-and-waiting, said communicating, said signaling and said routing instructions being executed selectively upon a determination that off-line maintenance is needed.

17. (previously presented) A computer-readable medium containing a program for temporarily taking offline for service a given network access server within a given hunt group, the given network access server having plural associated channels, the given network access server being operatively coupled with a network service request switch, the program comprising:

instructions busying out any substantially unused channels of the given network access server and communicating a busy condition thereof to the service request switch;
instructions monitoring any used associated channel, wherein busying out includes migrating existing calls having a usage threshold below a predetermined threshold to other access servers;

instructions awaiting termination of substantial use of any remaining associated channels of the given network access server and thereafter communicating a busy condition thereof to the service request switch;

instructions signaling that service to the given network access server can be

performed;

instructions automatically routing any new client service requests that may arrive during a busy condition of the given network access server to another network access server operatively coupled with the service request switch and within the given hunt group; and

instructions communicating a substantially idle condition of the associated channels to the service request switch, said communicating instructions being executed selectively upon a determination that such service has been completed.